

<b>Notice of Allowability</b>	Application No.	Applicant(s)
	09/913,955	CRINE ET AL.
	Examiner Delia M. Ramirez	Art Unit 1652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTO-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1.  This communication is responsive to 2/11/2004.
2.  The allowed claim(s) is/are 2,6,13,20,21,33 and 34.
3.  The drawings filed on 21 August 2001 are accepted by the Examiner.
4.  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a)  All
  - b)  Some\*
  - c)  None
 of the:
  1.  Certified copies of the priority documents have been received.
  2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3.  Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5.  A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6.  CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a)  including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1)  hereto or 2)  to Paper No./Mail Date \_\_\_\_\_.
  - (b)  including changes required by the attached Examiner's Amendment / Comment or in the Office action of
 Paper No./Mail Date \_\_\_\_\_.
7.  DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1.  Notice of References Cited (PTO-892)
2.  Notice of Draftsperson's Patent Drawing Review (PTO-948)
3.  Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4.  Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5.  Notice of Informal Patent Application (PTO-152)
6.  Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7.  Examiner's Amendment/Comment
8.  Examiner's Statement of Reasons for Allowance
9.  Other \_\_\_\_\_.

**DETAILED ACTION**

***Status of the Application***

Claims 2, 6, 13, 20-21, 33-34 are pending.

Amendment of claims 2, 6, and cancellation of claims 7-12, 14-19, 22-32, 35-40 in a communication filed on 2/11/2004 are acknowledged.

In a telephone conversation with Ms Mary Wilson on 3/3/2004, an agreement was reached to amend claim 6 and 33 to place the application in condition for allowance.

***Examiner's Amendment***

1. An Examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
2. Authorization for this Examiner's amendment was given in a telephone interview with Ms Mary Wilson on 3/3/2004.
3. Please replace claim 6 as follows:

6. A variant secPHEX consisting of the secPHEX of claim 2 wherein the glutamic acid residue corresponding to position 581 of SEQ ID NO: 1 has been substituted with a valine residue.

33. A method for obtaining a Phosphate Regulating Gene with Homologies to Endopeptidases on the X chromosome (PHEX) ligand comprising the steps of:  
contacting a sample containing one or more molecules with a secPHEX as defined in claim 2 under conditions such that binding of said one or more molecules with PHEX can occur;  
detecting said binding as an indication of the presence of a PHEX ligand in said sample;  
and  
selecting said PHEX ligand.

***Reasons for Allowance***

4. The following is an Examiner's statement of reasons for allowance. Although the prior art discloses a human phosphate regulating gene with homologies to endopeptidases on the X chromosome (PHEX) protein having the amino acid sequence of SEQ ID NO: 1 (Guo et al.; cited in the IDS and previous Office Actions), the Examiner has found no teaching or suggestion in the prior art directed to a polypeptide having the amino acid sequence of SEQ ID NO:1 modified so that amino acid residues 27-46 have been replaced with the amino acid residues set forth in SEQ ID NO: 4. Therefore, claims 2, 6, 13, 20-21 directed to a polypeptide or composition thereof, wherein said polypeptide comprises the amino acid sequence of SEQ ID NO: 1 modified so that amino acid residues 27-46 have been replaced with the amino acid residues of SEQ ID NO: 4, and claims 33-34 directed to a method of use of said polypeptide are allowable over the prior art of record.

5. Claims 3, 6, 13, 20-21 and 33-34 are allowed.

6. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Delia M. Ramirez whose telephone number is (571) 272-0938. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Ponnathapura Achutamurthy can be reached on (571) 272-0928. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1234.

Delia M. Ramirez, Ph.D.  
Patent Examiner  
Art Unit 1652

DR  
March 3, 2004

*Rebecca E. Prouty*  
REBECCA E. PROUTY  
PRIMARY EXAMINER  
GROUP 1800  
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